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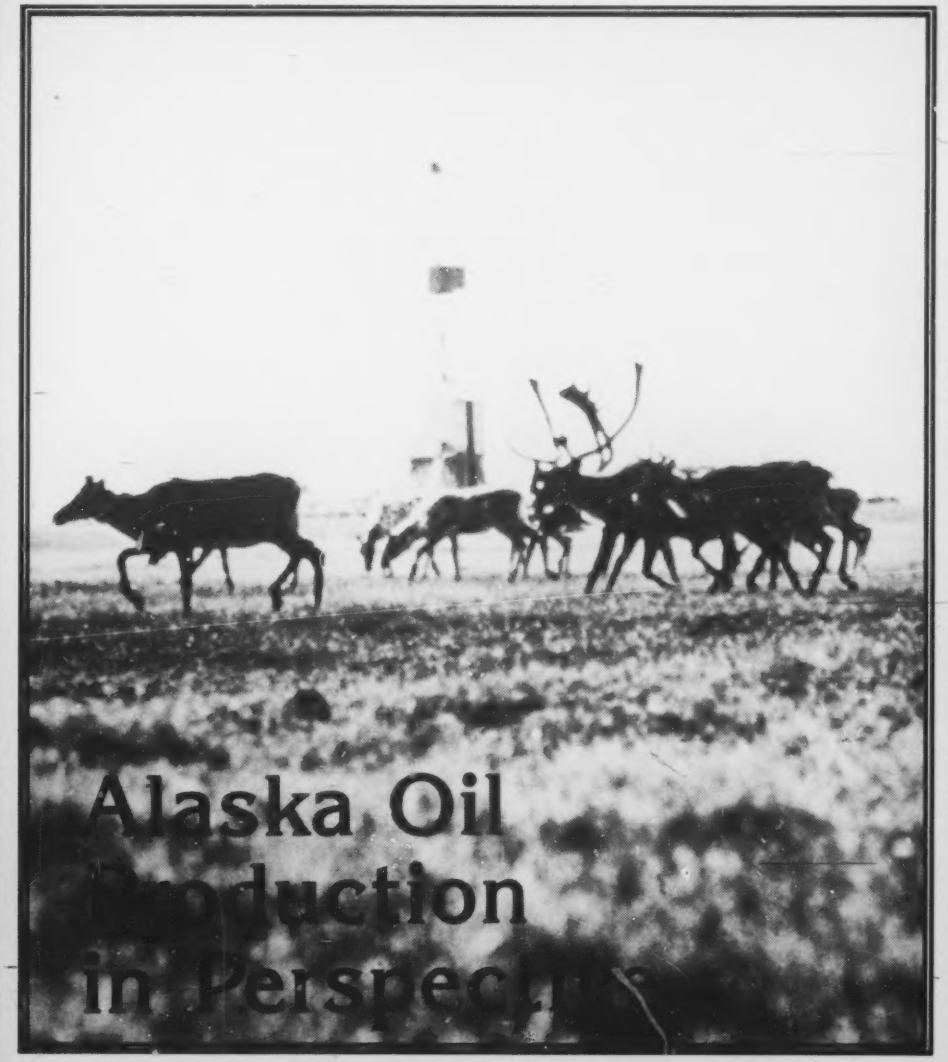
# ALASKA ECONOMIC TRENDS

October 1987



## Alaska Oil Production in Perspective

Alaska's Oil Patch

The Oil States—How Does Alaska Compare?

Working in the Oil Industry

ALASKA DEPARTMENT OF LABOR STEVE COWPER, GOVERNOR

# Alaska Economic Trends

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**The following notes pertain to Nonagricultural Wage and Salary Employment Tables:**

Government includes teachers in primary and secondary schools, and personnel employed by the University of Alaska.

Benchmark date March 1986.

P/ Denotes preliminary estimates.
R/ Denotes revised estimates.

# Alaska Oil Production in Perspective

**By Dr. Charles Logsdon[1]**

The discovery of the Swanson River oil and gas field on the Kenai Peninsula in 1957 marked the beginning of the oil era in Alaska. Alaska became a state at about the same time. In many ways the maturation and growth of the Alaskan economy mirrors the growth in oil production since that time. Figure 1 illustrates the oil production curve for Alaska compared to State employment since 1958.

By 1962 the Swanson River field was producing nearly 30,000 barrels of oil per day (Table 1). With the discovery of oil offshore in Cook Inlet and the installation of production platforms in the mid 1960s, the Middle Ground shoal field, the Granite Point field, the MacArthur River field, and the Trading Bay field together brought production up to over 200,000 barrels per day. By 1970, Alaska had become a significant oil producer and the oil industry was already contributing over 20% of the revenue coming into the State treasury.

The discovery of the super giant Prudhoe Bay field in 1968 suggested the real potential of Alaska as an oil producer. Over $900 million was spent in the 1969 state lease sale of the remaining tracts in the Prudhoe area. However, it would take the Arab oil embargo of 1973 to spur congress to pass legislation enabling the construction of the TransAlaska Pipeline System (TAPS) to move oil from Alaska's North Slope to Valdez for shipment to lower 48 markets.

**The discovery of the super giant Prudhoe Bay field in 1968 suggested the real potential of Alaska as an oil producer.**

TAPS was completed in June of 1977 at a cost of over $9 billion, making it the largest privately financed construction project ever undertaken. Oil production from Prudhoe Bay commenced June 20, 1977 and averaged 580,000 barrels per day that year. Production grew until the Maximum Efficient Rate (MER) established by the Alaska Oil and Gas Conservation Commission of 1,500,000 barrels per day was achieved in 1980.

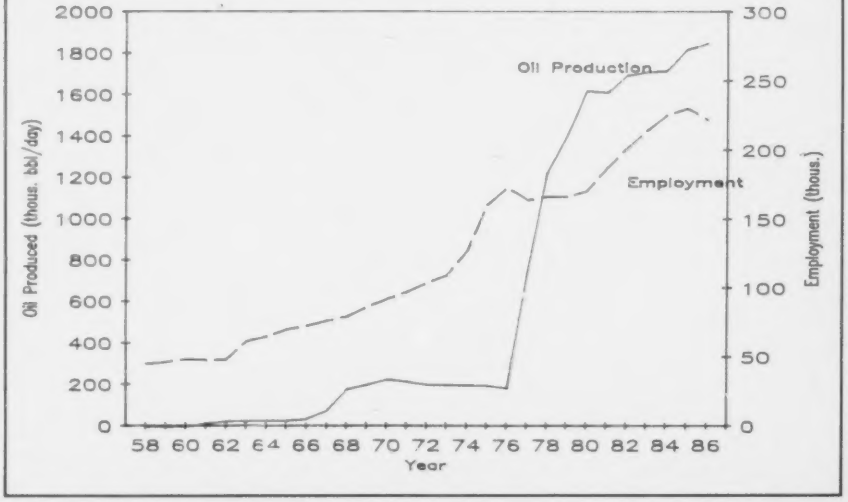
High oil prices in 1980 and the decontrol of domestically produced oil prices spurred development of the giant Kuparuk River oil field 30 miles west of Prudhoe Bay. The completion of the Kuparuk pipeline in 1981 brought this field into production at 80,000 barrels per day. Kuparuk production was developed in three phases. The third phase completed in December 1987 brought production up to 300,000 barrels per day.

The Milne Point field north of Kuparuk came into production in late 1985 at roughly 20,000 barrels per day but was shut-in when the collapse of oil prices made production unprofitable.

The Lisburne reservoir which underlies Prudhoe was brought into commercial production in 1987 and is currently producing at a rate of 45,000 barrels per day. The Endicott field which just began production has a target production a rate of 100,000 barrels per day.

Barring new discoveries on the Alaska North Slope, oil production in Alaska will probably peak between now and 1990. In the event that no

Figure 1
Alaska Oil Production & Nonag. Employment 1958--1986




[1]Dr. Charles Logsdon is a petroleum economist with the Alaska Department of Revenue.

new sources of oil are discovered, it is anticipated that one-half as much oil will be produced in Alaska in the year 2000 as is currently being produced. It might be pointed out that one-half of current production (900,000 barrels per day) is still a significant amount of oil—roughly the current production quota for the OPEC country Kuwait.

If Alaska were a country it would be the world's seventh largest oil producer with 1986 production of 1.855 million barrels per day. Only two countries in OPEC produced more oil than Alaska did in 1986, Saudi Arabia and Iran. The USSR, the lower 48 U.S., the United Kingdom, China, and Mexico were the only non-OPEC countries with more production than Alaska. Alaska accounts for 21% of the total oil production in the U.S. and roughly 3% of total world production. Table 2 presents information on world oil production and reserves for 1986.

Alaska accounts for only one percent of total world oil reserves and roughly one-third of total U.S. reserves. The relationship between Alaska reserves and production suggest that Alaska

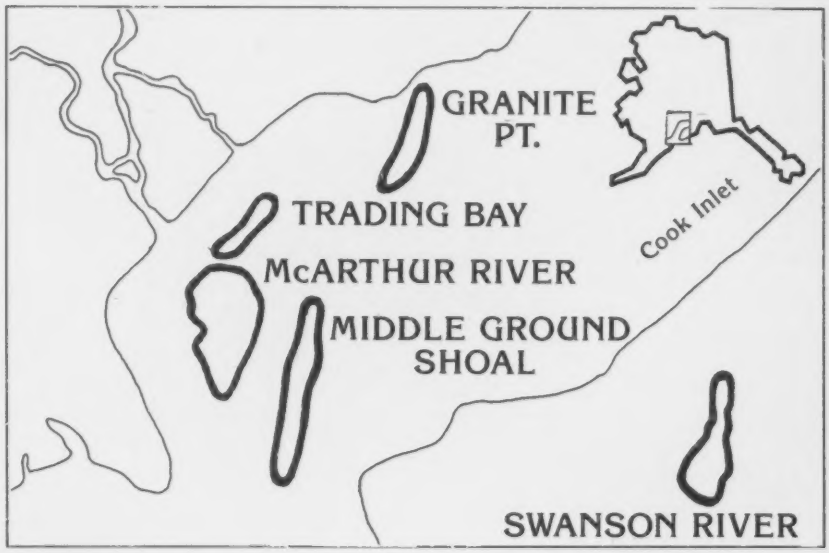
## Alaska Oil and Gas Key Field Locations

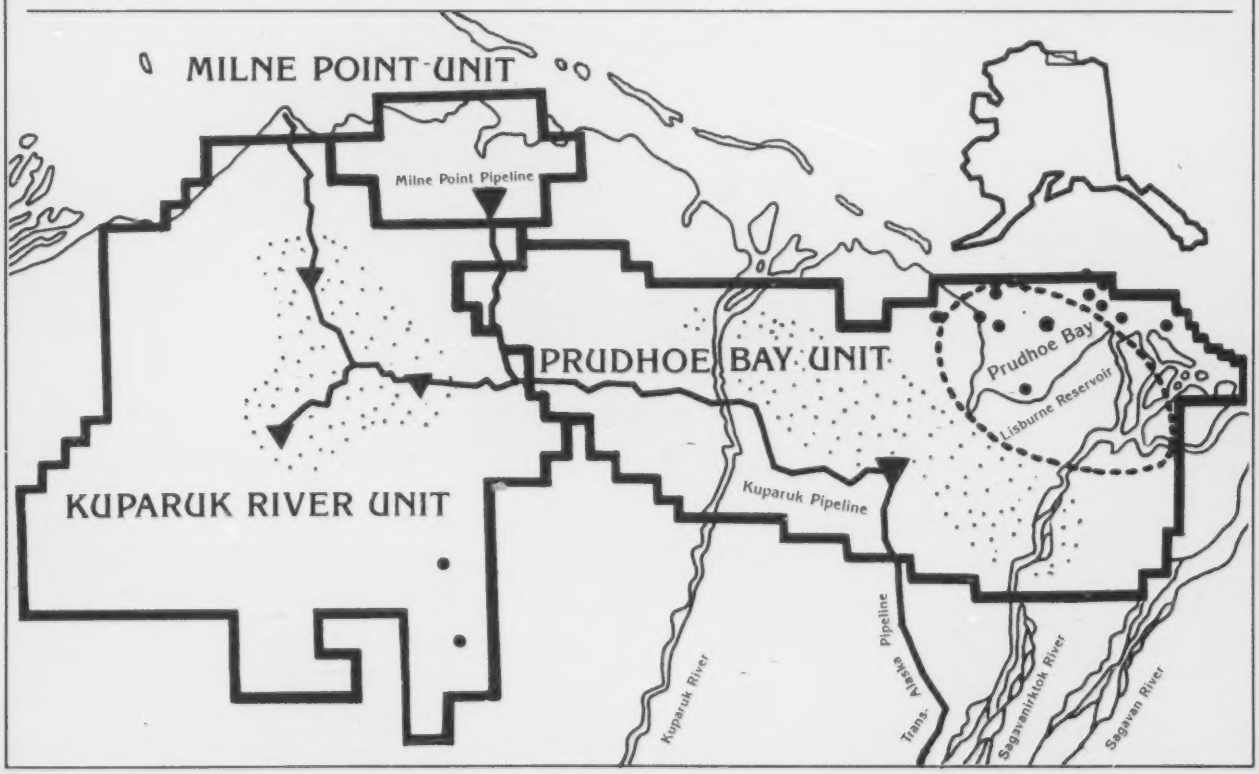
Central Production Facility ▼

Development Oil Wells •

Oil and Gas Unit Boundaries ▬

Source: Historical and Projected Oil and Gas Consumption, Alaska Department of Natural Resources, Division of Oil and Gas, January 1987.



reserves are being depleted at a much faster rate than is the case for most countries.

There are two reasons for this. First the Prudhoe Bay oil field is highly productive. The average well at Prudhoe produces at a rate of 2,800 barrels per day compared to the U.S. average of around 400 barrels per day. Second, most oil production world-wide is controlled by the governments of the producing country. Production rates are controlled to promote the oil price policy of the producing countries and also as an instrument for controlling economic growth. By contrast in the United States private companies determine production rates in response to market forces constrained only by regulations designed to promote maximum production through sound conservation practices.

With respect to production control, all of the OPEC countries produce at less than capacity to support the price structure agreements setup under the cartel production and pricing accords. Even producing at capacity, only four OPEC countries would have produced more than Alaska did in 1986. These comparisons illustrate in dramatic fashion just how large and productive the Prudhoe Bay oil field is.

The other important implication of the information contained in Table 2 is that of the 8.8 million barrels per day excess capacity which exists in the OPEC countries, Saudi Arabia accounts for 3.6 million barrels per day or 40%. This illustrates dramatically the potential supply side leverage the Saudis have in affecting OPEC pricing policy. This is why the Saudis have found themselves in the role of swing producer to enforce cartel pricing agreements. That is to cut production when over supply in the market weakens price and to increase production to correct shortages or discourage production quota cheating by other cartel members.

Interestingly Iran is the OPEC country with the second largest share of 1986 OPEC excess capacity. This underlines the importance of the need for cooperation between Saudi Arabia and Iran in managing the cartels over-

**Even producing at capacity, only four OPEC countries would have produced more than Alaska did in 1968.**

Table 1
Alaska Oil Production History Since Statehood
(Barrels Per Day)

| Year | Production Event | Cook Inlet | Prudhoe Bay | Kuparek | Milne Point | Lisburne | Total |
|---|---|---|---|---|---|---|---|
| 1958 | Swanson River | 98 | | | | | 98 |
| 1959 | | 511 | | | | | 511 |
| 1960 | | 1,529 | | | | | 1,529 |
| 1961 | | 17,333 | | | | | 17,333 |
| 1962 | | 28,107 | | | | | 28,107 |
| 1963 | | 29,425 | | | | | 29,425 |
| 1964 | Middle Ground Shoals | 30,285 | | | | | 30,285 |
| 1965 | | 30,497 | | | | | 30,497 |
| 1966 | Granite Point | 39,355 | | | | | 39,355 |
| 1967 | MacArther River | 79,215 | | | | | 79,215 |
| 1968 | Trading Bay | 181,103 | | | | | 181,103 |
| 1969 | | 203,597 | | | | | 203,587 |
| 1970 | | 229,080 | | | | | 229,080 |
| 1971 | | 215,849 | | | | | 215,849 |
| 1972 | | 201,540 | | | | | 201,540 |
| 1973 | | 200,382 | | | | | 200,382 |
| 1974 | | 197,796 | | | | | 197,796 |
| 1975 | | 197,184 | | | | | 197,184 |
| 1976 | | 183,586 | | | | | 183,586 |
| 1977 | TAPS Opens | 160,364 | 580,000 | | | | 740,364 |
| 1978 | | 137,559 | 1,089,000 | | | | 1,226,559 |
| 1979 | | 117,778 | 1,283,000 | | | | 1,400,778 |
| 1980 | Prudhoe at MER | 98,851 | 1,522,000 | | | | 1,620,851 |
| 1981 | Kuparuk Start-up | 86,411 | 1,522,000 | 2,990 | | | 1,611,401 |
| 1982 | | 75,151 | 1,532,241 | 88,622 | | | 1,696,014 |
| 1983 | Prudhoe Waterflood | 67,947 | 1,536,413 | 109,207 | | | 1,713,568 |
| 1984 | | 59,769 | 1,531,287 | 127,434 | | | 1,718,489 |
| 1985 | Kuparuk Phase 2 Milne Point | 47,154 | 1,556,023 | 215,888 | 1,929 | | 1,820,993 |
| 1986 | Kuparuk Phase 3 + Lisburne | 46,611 | 1,537,752 | 257,514 | 12,901 | 8,500 | 1,853,278 |

all production level. OPEC's current success in implementing a return to fixed prices around $18 per barrel was a direct result of a price and production agreement proposed by Iran and endorsed by Saudi Arabia at both the December 1986 and June 1987 OPEC meetings.

Table 2
World Oil Production and Reserves 1986

| Country | Production[1] (thousand bbl/day) | Capacity (thousand bbl/day) | Reserves (billion barrels |
|---|---|---|---|
| Saudi Arabia | 4,865 | 8,500 | 166.6 |
| Iran | 1,879 | 3,000 | 48.8 |
| Iraq | 1,688 | 2,000 | 47.1 |
| Kuwait | 1,238 | 2,000 | 91.9 |
| Abu Dhabi | 959 | 1,600 | 31.0 |
| Dubai | 380 | 450 | 1.4 |
| Shar jah | 65 | 75 | .5 |
| Qater | 333 | 500 | 3.2 |
| Neutral Zone | 361 | 600 | 5.2 |
| Mideast OPEC | 11,768 | 18,725 | 395.7 |
| Venezuela | 1,723 | 2,500 | 25.0 |
| Nigeria | 1,470 | 1,800 | 16.0 |
| Libya | 1,034 | 1,500 | 21.3 |
| Indonesia | 1,354 | 1,700 | 8.3 |
| Algeria | 600 | 800 | 8.8 |
| Gabon | 163 | 200 | .6 |
| Ecuador | 277 | 300 | 1.7 |
| Total OPEC | 18,389 | 27,525 | 477.4 |
| USA-Lower 48 | 6,872 | | 17.0 |
| USA-Alaska | 1,855 | | 7.6 |
| North Sea | 3,573 | | 20.0 |
| Mexico | 2,428 | | 54.7 |
| Oman | 560 | | 4.0 |
| Other West | 7,210 | | 37.5 |
| USSR | 12,301 | | 59.0 |
| China | 2,568 | | 18.4 |
| Other East | 440 | | 1.9 |
| Total World | 56,196 | | 697.5 |

Source: Petroleum Intelligence Weekly and the Oil and Gas Journal.

[1] Excludes natural gas liquids.

Unfortunately, looking at the situation as it occurred in 1986 doesn't tell the whole story because oil is a depletable resource which must be replaced by new discoveries over time if future production is to be maintained. In other words capacity must be expanded and reserves replaced.

In Alaska this means replacing Prudhoe Bay which will begin to decline by 1990. So far new discoveries of oil in Alaska have come no where near replacing the 5.5 billion barrels of oil already produced from the Prudhoe field. This is not to say that they can not be replaced since billions and billions of barrels of oil are known to exist in the ground on Alaska's North Slope in reservoirs such as the Ugnu and West Sak not to mention in Prudhoe Bay itself. The key is the cost to produce that oil and under current technology most of this oil cannot be profitably extracted.

In contrast much of OPEC's additional capacity can be extracted from the ground at very low cost. Table 3 presents estimates of the cost of adding to capacity in the OPEC countries.

Table 3
Cost of Expanding Capacity in the OPEC Countries in 1995
(Development and Operating Cost)

| Country | Total Cost ($/Barrel) |
|---|---|
| Iraq | $0.159/bbl |
| Kuwait | 0.334 |
| Qater | 0.353 |
| Saudi Arabia | 0.556 |
| Indonesia | 0.567 |
| Libya | 0.641 |
| Iran | 0.671 |
| Algeria | 1.527 |
| Abu Dhabi | 2.592 |
| Venezuela | 3.976 |
| Nigeria | 4.982 |

Source: M.A. Adelman, Massachusetts Institute of Technology, Center of Energy Policy Research.

The information contained in this table has two important implications for Alaska. First, because the cost of developing and producing oil in the OPEC countries are so low relative to world oil prices, there will always be the tendency for the OPEC members to produce in excess of that amount which would keep price at high levels. This implies that it is more likely that prices will continue low, say below $20.00 per barrel.

Since these cost estimates are for capacity expansions in 1995 the further implication is that the long term prospects for large price increases is small. Prices in the $20 per barrel range make investment in high cost areas like the West Sak Sands or Ugnu questionable.

Alaska's greatest hope of replacing Prudhoe, if prices remain at current levels over time, is new large discoveries. The geologists tell us that the underground structures capable

of holding large accumulations of easily recoverable oil have largely been explored. The major exception are those structures located in the Arctic National Wildlife Reserve (ANWR) and the Outer Continental Shelf (OCS).

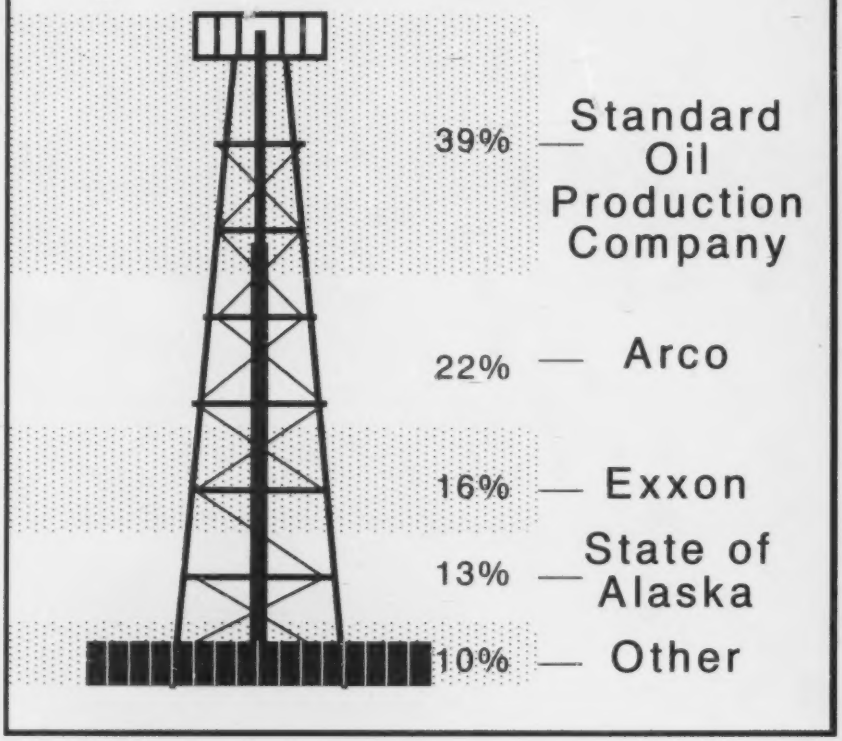
The second implication of Table 3 is that reserves may be added much more cheaply elsewhere than in Alaska (barring the discovery of another Prudhoe Bay sized field). This implies that Alaska will continue to suffer cost disadvantages in attracting investment for reserve additions. This raises interesting questions about the behavior of the companies who own the production from Prudhoe Bay. What are these companies doing to replace this asset as it is depleted? Are they reinvesting the profits from Prudhoe Bay back into Alaska? What is the state itself doing to encourage investment in Alaska production?

Figure 2 illustrates the ownership of 1986 Alaska North Slope production. The four major owners are Standard Oil Production, ARCO, EXXON, and the State of Alaska through its royalty interest in production. Table 4 summarizes the dependency of each of these three major companies on Alaska for their oil reserves.

Standard Oil Production is now a wholly owned subsidiary of British Petroleum (BP). Alaska oil now represents roughly one-half of the oil reserves of BP. Some of the revenue generated by the prolific Prudhoe Bay field will obviously be used to pay for this major acquisition. Standard will for some time continue to produce the largest amount of oil in Alaska. The company has a significant stake in all the current producing North Slope fields and the Trans-Alaska Pipeline in addition to being the operator of the Endicott field. As a result, Standard Oil Production has developed considerable expertise in Arctic oil production. It is not yet clear, however, what their acquisition by British Petroleum means for further investment in Alaska.

ARCO in press releases and in briefings with securities analysts has made a public commitment to continued investment in development of existing oil reserves in Alaska. The company has restructured to emphasize its position as a West Coast oil refiner/marketer. ARCO is Alaska's largest private employer. It appears that the company will continue to be an aggressive investor in Alaska.

Figure 2
Alaska Oil Production Ownership 1986



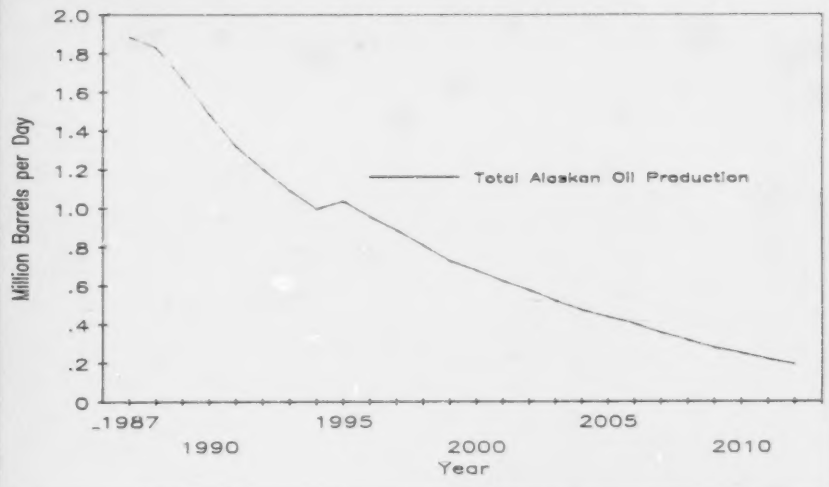

EXXON has in the past drilled and participated in the drilling of numerous exploratory wells in Alaska, most recently in the Norton Sound. Like the other major Alaska producers, EXXON owns a large number of leases on the North Slope known to contain recoverable hydrocarbons and is a participant in all of the cur-

Table 4
Distribution of Major Alaskan Producers Total Production
(1986 Production Thousand Barrels per Day)

| | Standard Oil Production | ARCO | EXXON |
|---|---|---|---|
| Alaska | 706 | 307 | 294 |
| Lower 48 | 20 | 189 | 433 |
| Foreign | | 75 | 1,000 |
| Total | 726 | 571 | 1,761 |
| % Alaska | 97% | 54% | 17% |

Source: International Petroleum Finance.

Figure 3
Predicted Oil Production for Alaska 1987–2012




rent producing fields. EXXON in particular has significant gas reserves in both Prudhoe Bay and the Point Thomson Unit. Recently EXXON acquired 100 million barrels of California reserves from Celeron following the industry trend of buying reserves rather than exploring for them. It remains to be seen to what extent EXXON will use Prudhoe Bay profits to invest in additional Alaskan production.

The State of Alaska attempts to encourage exploration and development of oil in several ways. First, the state has a timely schedule of lease sales. Second, some leases qualify for drilling incentive credits which can essentially underwrite the drilling of an initial exploration well. Third, the state severance tax is subject to the economic limit factor which reduces the tax burden on field which are marginally economic.

**Summary**

Alaska is relatively new on the oil scene as a major world supplier of crude oil. If Alaska were a country it would rank seventh among oil producing countries. Production of oil will peak soon (Figure 3) with Alaska playing a declining role in world oil markets unless major new fields are discovered. Regardless, Alaska will continue to produce billions of barrels of oil into the Twenty-first century while in the near term playing an important role in world oil markets.

## The Oil States—How Does Alaska Compare?

**By Neal Fried**

**Most oil-producing states are losing employment and population.**

A short time ago Alaska and the other oil producing states in the U.S. basked in prosperous, fast growing economies. These states played host to thousands of economic refugees who had migrated from recession-torn states during the 1970s and early 1980s. There was a feeling of invulnerability in the oil patch.

Today the situation has changed. Most oil-producing states are losing employment and population; their unemployment rates are among the highest in the nation; and their incomes are falling or are below the national average. Meanwhile much of the rest of the nation is experiencing one of the longest stretches of uninterrupted growth in post-war history. If company provides comfort, Alaska has a good deal of it as it experiences today's economic woes.

Alaska's economic performance during the recent decline is comparable to four of the five largest oil producers in the nation—Texas, Louisiana, Oklahoma, and Wyoming. California, the nation's fourth largest oil producer, is excluded because its oil industry represents only a fraction of that state's tremendous economic might. California's overall economy has actually benefited from lower oil prices. The remaining oil states are at different stages of economic diversification, but the oil industry still reigns king.

The free fall in oil prices in 1986 pushed the oil patch states' unemployment rates to new highs, employment in their oil industries to new lows, and created a tremendous ripple effect throughout their economies. Their economies continued to slide in 1987, though there are encouraging signs of recovery in some of the states.

### The Oil Industry's Employment Picture

Alaska's oil industry employment has fared well compared to the rest of the oil patch during these trying times. Alaska and Louisiana were the only states where oil production increased in 1986, whereas the nation's total oil production fell. In 1986 Alaska's oil industry employment registered the smallest percentage decline (3.4%) among the oil producing states. Alaska, dominated by a few large oil producers with large financial might rather than hundreds of independents, was able to withstand a free fall in oil industry employment.

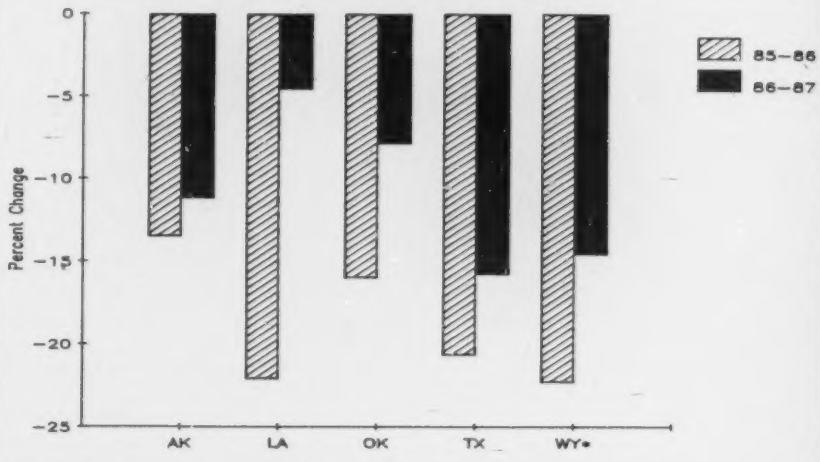
In addition to the domination of Alaska's oil industry by a few large oil producers, the size of the Prudhoe Bay oil field contributes to a more stable oil industry work force. As this country's only super-giant field, its size favors a much smaller work force. By virtue of its size, fewer exploration and producing wells have to be drilled and the smaller number of producing wells which do exist are exceptionally productive.

Other oil producing states are dominated by smaller fields which require more labor to squeeze a barrel of oil out of the ground. For example, Oklahoma has more than 100,000 producing oil wells compared to Alaska's 1,109, but produces only a little over one fifth as much oil. Louisiana has an oil industry work force seven times as large as Alaska's but only produces 75% as much oil. The result is a much more labor intensive work force in the other oil patch states which include many marginal oil fields that are more sensitive than Alaskan fields to the decline in the price of oil.

Alaska's oil industry employment declined through the first half of 1987. This decline was smaller than in Texas and Wyoming, but larger than the declines Oklahoma and Louisiana experienced (Figure 1). This may be partially explained by the fact that Oklahoma and Louisiana absorbed losses as far back as 1983—three years before Alaska's oil industry employment began to decline.

Texas lost the largest number of oil industry jobs; 51,000 in 1986 and another 33,500 during the first half of 1987. Texas has the largest oil industry work force but it was also the biggest loser on a percentage basis. This is not surprising since it also has one of the most labor intensive oil extraction industries—a Texas oil industry employee produces 4,200 barrels of oil a year compared to 88,000 in Alaska (Table 1).

Figure 1
Percent Change in Oil and Gas Employment




*Change in mining employment; oil and gas not available.

Table 1
Oil Production and Employment
1986

| | Crude Oil Production (thous. bbls.) | Oil and Gas Extraction Employment (thousands) | Production Per Employee (thous. bbls.) |
|---|---|---|---|
| ALASKA | 681,310 | 7.7 | 88 |
| Louisiana | 512,500 | 60.9 | 8 |
| Oklahoma | 149,105 | 52.5 | 3 |
| Texas | 839,606 | 198.1 | 4 |
| Wyoming | 121,337 | 11.0 | 11 |
| U.S. | 3,168,252 | 451.6 | 7 |

Source: Petroleum Independent

Oil and gas employment figures continue to remain below 1986 levels in 1987, but during the spring of this year encouraging signs were emerging. The Hughes drilling rig count, a leading indicator of the industry, began to rebound in all of the states but Alaska in late spring of this year. The Hughes rig count is not as important an indicator for Alaska because much less drilling activity takes place in Alaska per barrel of oil produced compared to all other states.

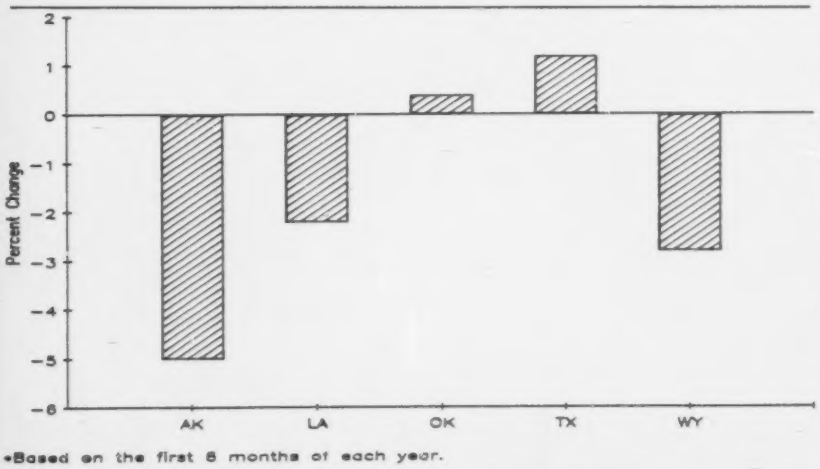
By May and June of 1987, nearly all of the states' oil and gas employment was approaching 1986 levels. Alaska oil and gas figures in January 1987 were 1,500 below year-ago numbers and by June of this year the difference had narrowed to 500. In January, Oklahoma's employment was 7,900 below year-ago levels and by June they were shy by only 1,100 of year-ago levels. More encouraging was the news in Louisiana, which became the first oil patch state to top 1986 numbers in July of this year.

**Table 2**
**1986 State and Local**
**Severance and Production Taxes**
**Paid by the Petroleum Industry**

| | Total Taxes Paid (thousands) | Per Capita |
|---|---|---|
| Alaska | $1,355,800 | $2,539 |
| Louisiana | 653,954 | 145 |
| Oklahoma | 571,965 | 173 |
| Texas | 1,547,926 | 93 |
| Wyoming | 137,999 | 272 |

Source: Petroleum Independent, Sept. 1987.

Figure 2
Percent Change in State and Local Government Employment, 1986 to 1987*




*Based on the first 6 months of each year.

### Local And State Government Impacts

Unlike oil industry employment, Alaska's state and local government losses have been larger than the losses in the rest of the oil patch states. This should come as no surprise when on a per capita basis, Alaska collects more than 9 times in severance and production taxes as the next highest state, Wyoming (Table 2). By the latter part of 1986 over-the-year losses began to occur in state and local government employment. For the first half of 1987, combined state and local government in Alaska was down 5%; Wyoming experienced the next largest loss of 2.8% and Louisiana followed close behind with 2.2% (Figure 2). Although the remaining states did not experience any combined losses, Oklahoma had a small loss in state government while Texas had a small loss in local government.

While state and local government employment losses in other oil patch states have been smaller than in Alaska, this has not meant that they do not have their share of budgetary problems. Earlier this year Oklahoma was running a $467 million budget deficit and Louisiana's deficit was at $500 million. Texas was facing an even larger problem earlier this year. The state budget runs on a 2-year cycle, and earlier in the year they were facing a $5.8 billion deficit for 1988 and 1989. Texas increased its state sales and gasoline taxes, introduced additional user fees and made cuts to come to grips with the deficit.

In addition to state and local government, the ripple effect spilled over into other sectors of the oil producing states' economies—with construction the biggest casualty. In all states but Louisiana construction took a hard fall in both 1986 and 1987. Alaska's losses were the greatest at 29% in 1986 and an additional 10% for the first half of 1987. Wyoming followed with 7% and 28% losses for 1986 and 1987 respectively.

Alaska's losses in construction employment were greater than the other

states for a number of reasons. Half of the other states' construction industries had already absorbed losses during the early 1980s, when the first oil price declines hit. Alaska's construction industry grew straight through 1985 at an annual rate of 13%, thirteen times the rate of any other oil producing state. Alaska's public construction program was more ambitious than the other states, and subsidized interest rates for residential construction provided an additional stimulus to the home building sector. Alaska's construction industry had further to fall and had become more dependent on oil.

Alaska's total employment over the past two years has been hit harder than most of the remaining oil patch states (Figure 3). Some of the oil producing states experienced employment losses prior to 1986, which was the first year Alaska weathered employment losses in the 1980s. Louisiana and Wyoming lost employment in both 1982 and 1983 and Oklahoma in 1983. If we were to look, however, from 1980 to 1986, Alaska would remain the fastest growing oil patch state. During this span of time, Alaska's annual employment growth rate measured 5.6%, compared to 1.6% for the remaining oil producing states.

**Unemployment**

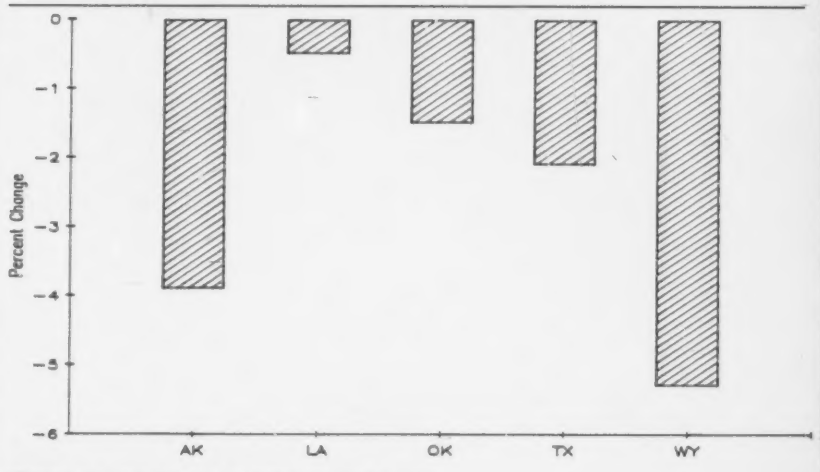
Alaska's and Louisiana's 1986 unemployment rates of 10.9% and 13.1% were the only double digit unemployment rates in the oil patch, although all of the oil producing states' unemployment rates climbed at least 2 points that year, while the national unemployment rate in 1986 edged downward to 7.0%. Four of the five oil producing states were among the top ten states in the nation with the highest unemployment in 1986. Although Texas' unemployment rate was only 8.9%, it represented that state's highest rate since the great depression.

With the exception of Alaska, the unemployment rates continue to edge higher in 1987 (Figure 4). At the same time, the national unemployment rate has fallen to 6.0%, the lowest it has been since December 1979. Alaska's unemployment rate began to fall by 1987. This was due to the exodus of the unemployed not a rebound in the economy.

**Diversification**

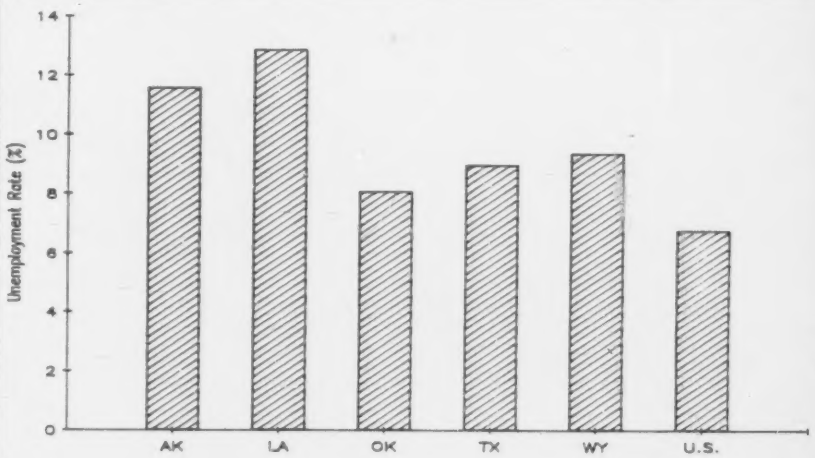
All of the oil producing states have embarked upon economic diversification strategies. With the exception of California, Texas has the most diversified economy in the oil patch which may partially explain its lower unemployment rate. Texas has made strong inroads into the health, research, defense, and high tech industries

Figure 3
Percent Change in Total Employment, 1986 to 1987*




*Based on the first 6 months of each year.

Figure 4
Oil States Employment Rates in 1987*




*6 month average.

while agriculture remains one of its most important industries. The latter two industries are actually contributing to Texas' present economic downturn because of import competition and low agricultural prices.

Bolstering tourism has been considered by all of the states, and the Texas, Louisiana and Oklahoma legislatures all considered, but voted down, gambling as an alternative way to raise revenues. In an attempt to obtain more long-term activity, many of the states are attempting to attract national corporate headquarters. Presently most of the oil patch states can offer some of the cheapest rental space prices and a large supply of labor, usually at a competitive wage. Attracting high tech industries is another area of particular concentration of their diversification efforts. These efforts may eventually help minimize the influence the oil industry has on their economies, but, in the short term, only a turnaround in the level of oil industry activity will breathe new life into the oil patch.

**Conclusion**

The worst is over for the oil industry in Alaska and the nation. Signs of new life are now appearing regularly and the oil industry is likely to pull out of the slump soon. The oil industry employs only a small part of Alaska's work force, however, its improving outlook will not have an immediate effect on Alaska's employment picture. With additional cuts in Alaska's state capital and operating budget this year, much of the rest of the economy will continue to feel the reverberations of declining oil revenues. And these oil revenues support a much larger share of Alaska's work force than the oil industry. Most important, however, is the fact that a recovering oil industry is an important indicator that the worst of the present recession may soon be behind us.

## Alaska's Oil Patch

**By Greg Huff**

**Alaska accounts for about 21.2% of the U.S. daily production.**

Alaska is a giant among U.S oil producing states. The daily rate of oil production from Alaska accounts for about 21.2% of the U.S. daily production. Most impressive is that this production level comes from a small number of oil fields. Although there are 26 known sedimentary basins in Alaska only two—the North Slope and Cook Inlet—produce commercial quantities of oil.

Prior to 1977, Cook Inlet oil represented all of Alaska's commercial oil production. Today the North Slope fields account for about 97% of Alaska's oil production. As of mid-1987 oil production from the North Slope was from three oil fields: Prudhoe Bay, Kuparuk and Lisburne. Production from these three fields has increased Alaska's annual oil production ten fold since 1977, to over 670 million barrels a year.

Table 1
Alaska Oil Industry Employment

| Industry | 1980 | 1981[1] | 1982[1] | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|
| Producers | 3,312 | 3,156 | 3,549 | 4,057 | 4,515 | 4,748 | 4,639 |
| Drilling | 991 | 1,493 | 1,245 | 815 | 841 | 1,175 | 1,171 |
| Exploration (seismic) | 751 | 1447 | 1615 | 930 | 710 | 673 | 340 |
| Oil Field Services | 1,100 | 2,020 | 1,676 | 1,641 | 1,983 | 2,274 | 2,359 |
| Total | 6,153 | 8,116 | 8,084 | 7,442 | 8,049 | 8,869 | 8,508 |
| **Oil Industry Indicators** | | | | | | | |
| Number of oil rigs | 14 | 23 | 22 | 14 | 14 | 20 | 13 |
| Exploration (crew months) | 37 | 82 | 129 | 58 | 79 | 48 | 19 |
| Production (million bbl) | 591.7 | 587.3 | 618.9 | 625.5 | 630.4 | 666.2 | 681.3 |

Sources: Employment data: Alaska Department of Labor, ES-202 data 1980-1986.
Oil industry indicators: Petroleum Independent
[1] ES-202 figures were adjusted for coding errors.

Each stage in the development of the North Slope oil fields has resulted in more oil and gas jobs in Alaska, though there have been intermittent periods where employment has fallen. Over the last decade, Alaska's oil and gas employment has grown nearly three fold, peaking in 1985 at 8,869 jobs. Although employment fell in 1986 the industry still accounted for 4% of the total jobs and 9% of total wage and salary payroll in Alaska.

**Alaska's Oil Employment 1980-1987**

From 1980 through 1982 Alaska oil patch employment grew rapidly (Figure 1). This growth in employment was brought on by $30 a barrel oil prices and major development projects in the Prudhoe Bay and Kuparuk fields. Employment cutbacks followed in 1983 with reduced drilling and seismic exploration schedules. In 1984 another period of employment expansion began with rounds of additional development in the Prudhoe Bay Field directed at maintaining the daily production rate of 1.5 million barrels and extending the production life of the field. Concurrently, additional development was being done in the Kuparuk field.

Projects at both fields caused drilling schedules to increase, gravel pads and pipelines to be built, and production and enhanced recovery facilities to be constructed and staffed. This period of growth lasted until 1986 when the collapse of oil prices caused a critical reassessment of planned development activities. Oil and gas exploration activities were delayed or altered, idling equipment and crews.

An example of a marginal field that was shut down by low oil prices is the Milne Point oil field. Milne Point started producing in late 1985 but shut down in the summer of 1986. On the other hand, the Lisburne field, considered marginal, began commercial production in December 1986. In addition, Standard Alaska Production Company brought the Endicott Oil field into operation in October, so there was some positive news despite the gloomy scenario caused by falling oil prices.

After all the dust settled, less than 400 oil and gas jobs had been lost by the end of 1986; not that bad considering the free fall of oil prices. By the end of 1986 oil prices began to climb and by 1987 oil prices had returned to levels that were comparable to those prior to the crash. However, oil and gas employment continued to fall as drilling and exploration schedules were further reduced, but the worst appear to be over as some industry indicators are improving.

Figure 1
Alaska Oil and Gas Employment 1980 to mid 1987

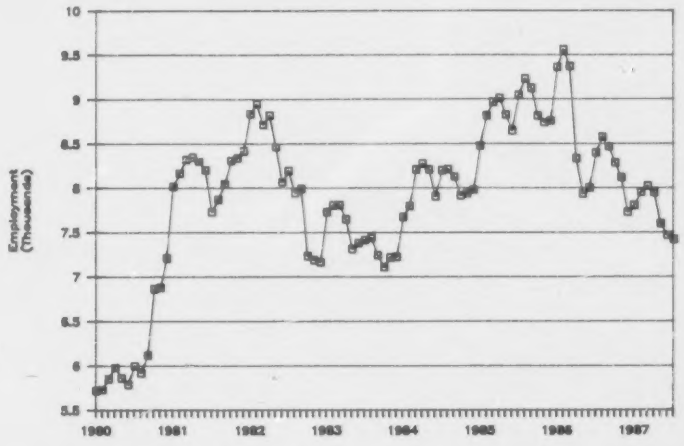
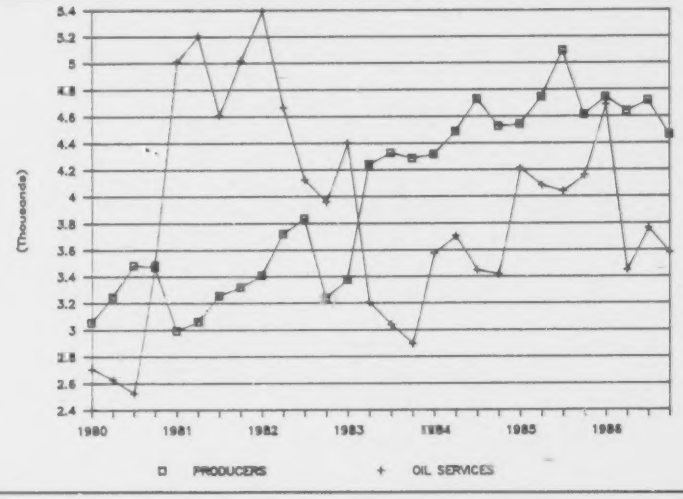



Figure 2
Alaska Oil and Gas Employment – Producers and Services




**Production Employment**

Each stage of development has a different impact on employment levels of the various segments of the oil industry (Figure 2). The two primary segments are oil and gas production and oil field services. The oil and gas production segments includes the primary operators of the oil fields such as ARCO and Standard Alaska Production Company. This segment employs workers to operate production facilities and to support and/or manage the operations in the field.

The oil field services segment includes firms which provide contract services to the primary operators. These services includes drilling, exploration services and miscellaneous oil field services.

Employment in the production segment grew each year from 1980-1985, because of the ongoing development of the North Slope oil fields. Cook Inlet production employment was fairly stable over the period. Company reorganization and layoffs caused by the 1986 drop in oil prices halted growth in production employment. The layoffs and reorganizations ultimately caused production employment to fall by 100 jobs.

**Field Service Employment**

Employment in the oil field service segment have fluctuated widely over the years (Figure 2). Employment in oil field services peaked in 1982 then fell sharply through late 1983. Although there was a growth period beginning in late 1984, employment never regained the levels reached in the early 1980s. In general, as the North Slope fields mature the demand for exploration and drilling services declines.

A further breakout of the oil field services segment is helpful in understanding its underlying employment trends. The three sectors which make up the oil field services component are drilling, exploration, and miscellaneous oil fields services. They all provide oil and gas services on a contract basis to the primary producers.

The drilling services sector contains establishments that specialize in directional drilling, spudding in wells, and redrilling or reworking wells. Exploration service firms provide geophysical and geological services including seismic testing. The miscellaneous oil field services category is a catch all for firms providing any other type of oil field services, such as building foundations at well locations, cementing wells, or chemically treating wells.

Of the three sectors the exploration services tends to be the most sensitive to oil prices. Both exploration and drilling are utilized extensively during early phases of oil field development. The miscellaneous component is influenced more by facility construction, production schedules, and oil field maintenance.

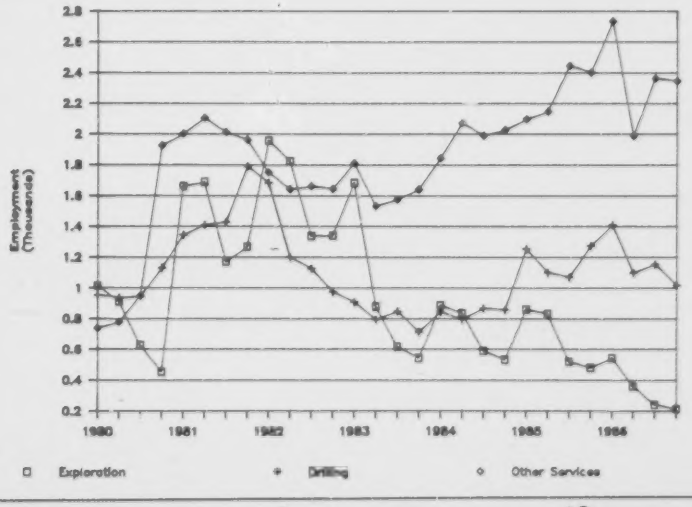
The drilling and exploration sectors have similar trends through 1983. Employment grew rapidly during the early development stages of Prudhoe and Kuparuk fields, but fell quickly in 1983 (Figure 3). Drilling and exploration employment trends separated in 1984 as enhanced recovery techniques on existing fields and the development of the marginal fields increased the demand for drilling services. In fact, drilling employment levels during the first quarter of 1986 were the highest since 1982.

**1986 and Beyond**

The oil industry cutbacks were the greatest in exploration activities after the collapse in oil prices. For example, exploration activity, measured in terms of crew months, dropped over 60% in 1986 in Alaska. The figures for 1987 are preliminary, but indications are that exploration activities are slowly recovering as oil companies concentrate on further development of the existing producing fields and initial development of other known fields.

Next hardest hit by falling oil prices was drilling services. Drilling schedules were dramatically cut back resulting in the number of rigs work-

Figure 3
Alaska Oil and Gas Employment – Oil Field Services



ing in the state falling from 22 in February 1986 to 6 by December 1986. Drilling employment fell from 1,434 to 965 over the same period.

The number of rigs operating in Alaska from December 1986 through July 1987 fluctuated between 6 and 9. Rig activity is expected to increase through the rest of 1987 and into 1988 as further North Slope development occurs. Among the additional drilling activities expected are enhanced recovery techniques at Prudhoe Bay and Kuparuk fields, the increase in production at the Lisburne field and the soon to be producing Endicott field.

**Conclusion**

Since the development of the North Slope oil fields Alaska has become an oil giant among the U.S oil producing states. Alaska's oil production has increased ten fold in the past ten years while oil and gas employment has grown nearly three times. In 1986 the industry represented 4% of all jobs and 9% ($551 million) of total payroll in Alaska.

Besides direct employment the oil industry provides a limited secondary impact on employment in Alaska largely limited to expenditures of employees' payroll and the construction associated with the development of oil fields. Nearly all manufacturing and assembly of equipment used in the oil industry is done outside Alaska so economic impacts from that sector are small.

The oil industry in made up of several segments, each of which reacts differently to exploration and development schedules, which in turn are shaped by the level of and change in oil prices. Overall the production and miscellaneous oil field services segments have had employment increases from 1980 to 1985, and only small employment declines in 1986.

Employment levels in drilling and exploration services, on the other hand, have fluctuated up and down over the period depending upon exploration and development schedules, peaking during the early development stages of the Prudhoe Bay and Kuparuk fields.

Alaska's oil patch, like other oil patch states around the world, had major setbacks in 1986 but if oil prices remain at current levels Alaska's oil patch will recover and the state's economy will improve with it.

## Working in the Oil and Gas Industry

**By James Wilson**

The oil and gas industry is currently the keystone of Alaska's economy. This is, however, a relatively new natural resource activity in the state. The large scale development of the oil industry began less than twenty years ago with the North Slope oil lease sale in 1969. Although a prime mover of economic activity, the oil and gas industry directly employs fewer than 10,000 workers, or roughly 6% of private sector employment. Employment levels in other industries such as government, construction, trade, and services are very much dependent upon the economic stimulus from oil generated revenues and taxes.

**Although a prime mover of economic activity, the oil and gas industry directly employs fewer than 10,000.**

Most discussions of the oil and gas industry center on the extraction of the resource, which is the major part of the oil activity. Other economic components of the bigger picture include: the Trans-Alaska Pipeline System including the storage and tanker loading facilities at Valdez, refineries, and finished product bulk storage and distribution systems.

**Employment Levels in Oil and Gas**

The oil and gas extraction industry is comprised of two primary components, 1) production, and 2) oil and gas field services (which include exploration and drilling). Currently 55% of the annual average employment is in the production segment and 45% is in the field services portion. Field services work is more seasonal than production activity and annual employment levels are more variable than in production. Table 1 lists occupations in mining for 1986 and forecasted occupations for 1991. (Oil and gas make up over 90% of these occupations)

Table 1
Occupational Employment for Mining

| OES Occupation Title | 1986 Employment | 1991 Employment | Percent of 1986 Total Industry Employment |
|---|---|---|---|
| OFFICERS AND MANAGERS | 599 | 600 | 6.40 |
| General Managers & Top Executives | 185 | 180 | 1.98 |
| Mining,Quarrying & Oil/Gas Well Managers | 136 | 144 | 1.45 |
| All Other Managers & Administrators | 278 | 276 | 2.97 |
| PROFESSIONAL AND TECHNICAL WORKERS | 2,626 | 2,625 | 28.07 |
| Accountants & Auditors | 240 | 234 | 2.57 |
| Civil Engineers | 142 | 136 | 1.52 |
| Drafters | 98 | 99 | 1.05 |
| Electrical/Electronic Engineering Technicianss | 84 | 81 | 0.90 |
| Geologists/Geophysicists/Oceanographers | 352 | 408 | 3.76 |
| Mechanical Engineers | 116 | 111 | 1.24 |
| Operations/Sys Researchers, Except Computer | 312 | 298 | 3.34 |
| Personnel/Training/Labor Rel Specialists | 100 | 102 | 1.07 |
| Petroleum Engineers | 261 | 250 | 2.79 |
| All Other Engineering Technicians/Technologists | 166 | 160 | 1.77 |
| All Other Engineers | 146 | 145 | 1.56 |
| All Other professional & technical workers | 609 | 601 | 6.50 |
| SALESPEOPLE | 50 | 54 | 0.53 |
| CLERICAL WORKERS | 944 | 975 | 10.09 |
| Bookkeeping, Acctg, & Auditing Clerks | 81 | 104 | 0.87 |
| General Office Clerks | 145 | 141 | 1.55 |
| Secretaries | 335 | 344 | 3.58 |
| Supervisors/Managers: Clerical/Administrative Support | 76 | 77 | 0.81 |
| SERVICE WORKERS | 150 | 168 | 1.60 |
| CRAFTS, OPERATORS, LABORERS | 4,985 | 5,029 | 53.29 |
| Blasters/Explosives Workers | 72 | 70 | 0.77 |
| Carpenters | 57 | 54 | 0.61 |
| Derrick Operators: Oil & Gas Extraction | 114 | 109 | 1.22 |
| Electricians | 41 | 39 | 0.44 |
| Helpers: All Other Construction Trades | 193 | 212 | 2.06 |
| Maintenance Repairers: General Utility | 117 | 131 | 1.25 |
| Mechanics: Mobile Heavy Equip, Except Engine | 157 | 159 | 1.68 |
| Operating Engineers | 413 | 397 | 4.42 |
| Rotary Drill Operators: Oil/Gas Extract | 287 | 275 | 3.07 |
| Roustabouts | 590 | 565 | 6.31 |
| Service Unit Operators | 163 | 156 | 1.74 |
| Supervisors: Construc/Extractive Workers | 276 | 282 | 2.95 |
| Truck Drivers: Heavy or Tractor Trailer | 110 | 107 | 1.18 |
| Welders & Cutters | 76 | 82 | 0.81 |
| Well Head Pumpers | 91 | 87 | 0.97 |
| All Other Extractive Workers, Except Helpers | 563 | 546 | 6.02 |
| All Other Helpers/Laborers/Material Movers: Hand | 696 | 666 | 7.44 |
| All Other Machinery Maintenance Mechanic | 119 | 123 | 1.27 |
| All Other Supervisors: Production/Construction/Maintenance | 130 | 125 | 1.39 |

Beginning in the early 1970s employment in oil and gas extraction grew rapidly. Annual average employment peaked at roughly 8,800 in 1985. With the collapse of oil prices in 1986, employment dropped by 4% from the 1985 level. Oil industry employment levels during 1986 and early 1987 were somewhat insulated from the oil price drop. Alaska's oil and gas producing companies are large corporations which had the ability to weather the crisis. Employment is expected to be stable during 1987 with slight increases predicted during the later part of the year.

## Working Conditions

Work can be challenging for those workers who are at drilling sites. The majority of drilling sites are in remote areas, which often require workers to spend several weeks or more of consecutive time away from home. Alaska has both onshore and offshore drilling rigs. All types of weather are encountered, especially extreme cold temperatures which sometime drop to −50 degrees during the winter months. Physical strength and stamina are required of workers. Tools used are often oily and dirty. The work may include night shifts and holidays since rigs operate 24 hours a day. Work shifts on oil rigs are usually 12 hours a day for seven or 14 consecutive days followed by seven days off.

Petroleum processing workers operate the refineries which manufacture crude oil into useful products such as gasoline and other fuels. The work may be either inside or outside depending on the job duty. Outdoor work would be in Alaska's harsh weather conditions while the indoor duties may involve some work in hot places. Since most plants have con-

tinuous production, swing shifts and weekend work are common.

**Hiring Practices**

Most people begin working in the petroleum industry as petroleum helpers. These workers are more frequently known as roustabouts or laborers and perform a wide variety of oil field tasks. Helpers whose duties are performed on a drilling rig are called roughnecks, drillers helpers, or rotary floor workers. Employers prefer applicants with previous oil field or mechanical repair experience. There are an estimated 1,250 petroleum helpers employed in Alaska.

After several seasons of experience roustabouts and roughnecks can advance to become derrick operators or rotary drillers. Some employers feel that a mechanical background is important for rotary drillers to successfully diagnose underground conditions from sound, feel, and surface conditions. There are an estimated 430 rotary drillers employed in Alaska. Roughly 425 people work as derrick operators, service unit operators, well head pumpers, hoist and winch operators, and pump operators.

According to the Alaska Career Information System about 70 production workers are employed in Alaska's refineries. Most production workers enter as laborers. Other openings are filled by in-plant promotions based on seniority and ability.

The occupations featured in this discussion are unique to the oil industry and account for roughly 10% of the industries workers. It should be recognized that the majority of people in the oil and gas industry work in a wide variety of other managerial, technical clerical, and craft occupations (Table 1).

**Wages**

The oil and gas extraction industry paid 13% of all private sector wages in 1986, but it contains only 6% of the private work force. This industry has the highest average monthly wage in Alaska ($5,398 vs. $2,221 for the private sector). The average monthly wage is higher in oil production ($6,160) than in field services ($4,484). People who work in oil and gas earn more than in other private sector industries because of some of the demanding jobs that involve long hours under harsh conditions. Workers in the oil industry in administrative and support jobs receive wages more comparable to similar jobs in other industries.

Petroleum helpers earn an average wage of approximately $14.50 per hour to start and up to $17.00 per hour with experience. Rotary drillers earn roughly $14-$20 per hour while derrick operators make between $18-$22 per hour.

**Job Opportunities**

The forecast of occupational employment for 1991 reveals that there will be no appreciable growth in numbers of jobs. Many occupations will have fewer people. Job openings will basically be due to turnover. This lack of occupational employment growth is not just due to the current difficulty with the price of oil but also because production of Alaska oil is expected to decline during the 1990s. There is currently an extreme surplus of applicants for entry level oil and gas jobs, and a moderate surplus of workers for jobs requiring experience.

**Worker Injury Rates**

The incidence rate for total injury and illness cases in the private sector in 1985 was 10.7 cases per 100 full time equivalent workers while the rate in Oil and Gas was 9.7 cases per 100 workers. Incidence rates of time loss cases (versus total injury and illness cases) for the two components of oil and gas extraction differ greatly. The oil production industry has one of the lowest time loss cases of any industry in Alaska, 0.7 cases per 100 workers.

In contrast, the oil and gas field services industry time loss case rate was 7.9 cases per 100 workers. Within the field services industry a few occupations account for a majority of time loss cases. Roustabouts (an estimated 590 workers) reported 133 of the 375 time loss cases in field services during 1986. While the oil and gas industry has an incidence rate lower than the state average a few occupations within the industry have a higher than average risk of injury.

The oil and gas industry is one of a few industries in which back injuries are not the dominant kind of injury. Instead the lower extremities are the parts of the body most frequently injured. Oil and gas has a high ratio of fractures. Historical data show that the oil and gas industry has a high proportion of time loss cases occurring after the eighth work hour of the shift. This is from the long shifts worked in the field services and shows that worker fatigue figures significantly in the occurrence of injuries.

**Worker Occupational Health**

Crude oil is a mixture of complex organic compounds. In all stages of the extraction, manufacture, and transportation of oil and its derivative products proper precautions must be taken to minimize exposure to compounds known to cause illness and disease. Exposure to different substances can occur through skin contact or inhalation of vapors in the work environment. The oil industry provides training, protective clothing and respirators, and establishes procedures for workers to follow.

Hydrogen sulfide is an oil contaminant that may be present in the crude product which can cause respiratory arrest. Fortunately the industry has had long experience with this problem and how to take proper precautions.

Substances which are not components of oil or its derivatives also require proper handling by workers in the oil industry. These include special polyurethane and epoxy paints, used for pipes, and asbestos, which was used in the past as a pipe insulator but more likely now to be found in gaskets. Carbon monoxide can be a concern when workers are using air respirators.

Maintenance workers are most at risk to exposure to potential illness causing substances. Exposure occurs when closed systems are opened up or and when storage facilities are cleaned and maintained.

Occupational health will continue to be an issue, even though the oil and gas industry has a good safety and health record, because of the interest in long term health effects of working with complex chemical substances.

### Conclusion

The oil and gas industry drives the economy in Alaska. Although the oil and gas industry directly employs only 6% of the private workforce its impact on employment levels in other industries is profound. Workers in oil and gas, particularly those involved in the actual drilling and extraction earn rates of pay well above the average for private industry. The high rates of pay, however, go hand in hand with working under extreme conditions for long hours at remote locations. The industry has a worker injury rate below the state average but there are environmental health factors for some oil workers which are not present in other industries. Job availability in the future will depend upon turnover, as oil production is expected to decline in future years. Competition for jobs in the oil and gas industry will be high, especially for entry level work.

## Alaska's Employment Scene

**By John Boucher**

**Table 1**
**Nonagricultural Wage and Salary Employment**
**By Place of Work**
**Alaska**

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 224,100 | 226,100 | 236,400 | -2,000 | -12,300 |
| Mining | 8,400 | 8,300 | 9,000 | 100 | -600 |
| Construction | 15,100 | 14,100 | 16,300 | 1,000 | -1,200 |
| Manufacturing | 19,500 | 21,600 | 20,800 | -2,100 | -1,300 |
| Food & Kindred Prod. | 13,200 | 15,200 | 14,400 | -2,000 | -1,200 |
| Lumber & Paper Prod. | 3,200 | 3,200 | 3,000 | 0 | 200 |
| All Other Mfg. | 3,100 | 3,200 | 3,400 | -100 | -300 |
| Trans. Comm. & Utilities | 19,100 | 19,400 | 19,600 | -300 | -500 |
| Trucking & Whseing. | 2,300 | 2,300 | 2,500 | 0 | -200 |
| Water Transportation | 1,500 | 1,500 | 1,800 | 0 | -300 |
| Air Transportation | 5,900 | 6,000 | 5,700 | -100 | 200 |
| Other Trans. Comm. & Utilities | 9,400 | 9,600 | 9,600 | -200 | -200 |
| Trade | 44,100 | 43,800 | 46,700 | 300 | -2,600 |
| Wholesale | 7,700 | 7,800 | 8,200 | -100 | -500 |
| Retail | 36,400 | 36,000 | 38,500 | 400 | -2,100 |
| Gen. Mer. & Apparel | 5,500 | 5,500 | 5,600 | 0 | -100 |
| Food Stores | 6,200 | 6,100 | 6,200 | 100 | 0 |
| Eating & Drinking Pl. | 13,800 | 13,500 | 14,800 | 300 | -1,000 |
| Other Retail Trade | 10,900 | 10,900 | 11,900 | 0 | -1,000 |
| Finance-Ins. & R.E. | 11,800 | 12,000 | 12,900 | -200 | -1,100 |
| Services & Misc. | 43,400 | 43,800 | 46,300 | -400 | -2,900 |
| Government | 62,700 | 63,100 | 64,800 | -400 | -2,100 |
| Federal | 18,800 | 18,800 | 18,400 | 0 | 400 |
| State | 17,600 | 17,900 | 19,200 | -300 | -1,600 |
| Local | 26,300 | 26,400 | 27,200 | -100 | -900 |

Prepared in cooperation with the U.S. Bureau of Labor Statistics.
Government includes teachers im primary and secondary schools, and personnel employed by the University of Alaska.

Benchmark Date March 1986.

p/ Denotes Preliminary Estimates.

r/ Denotes Revised Estimates.

The Alaskan unemployment rate continued its summer decline in August as the statewide unemployment rate fell to 9.1% (Table 9). The drop of more than one-half of a percentage point means there were almost 2,000 less unemployed people in the Alaskan labor force in August than in July. The 9.1% unemployment rate was the lowest recorded since the summer of 1985.

The decline in the unemployment rate from July to August can be largely attributed to increased activity in the construction industry. Unemployment weeks claimed by those persons whose last employment was in construction fell nearly 20% from July to August. Since construction posted the largest employment gain over the month, 1,000 jobs from July to August, it can be inferred that unemployment weeks claimed dropped in part due to unemployed construction workers being able to find employment.

Increasing construction activity is evident throughout the state. Some of the most notable projects being the Red Dog mine access road in the Northwest Arctic Borough and the military construction project at Fort Wainwright. The release of impounded capital project money by the state has also served to stimulate additional construction activity.

While unemployment fell over the

month and the construction industry posted employment gains, other indicators pointed to a less than healthy Alaskan economy. The unemployment rate is falling, but part of the drop is due to people either dropping out of the labor force, because there are few employment opportunities, or people leaving the state to find employment elsewhere. Although construction's employment situation improved over the month other industries did not fare as well (Tables 1-7). The only other industry to post an employment gain was trade and that was done largely on gains in employment in food stores and eating and drinking establishments.

**Table 2**
**Nonagricultural Wage and Salary Employment**
**By Place of Work**
**Anchorage**

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 105,900 | 106,350 | 111,700 | -450 | -5,800 |
| Mining | 3,350 | 3,300 | 3,450 | 50 | -100 |
| Construction | 8,050 | 7,700 | 8,750 | 350 | -700 |
| Manufacturing | 3,400 | 3,550 | 3,500 | -150 | -100 |
| Food & Kindred Prod. | 1,550 | 1,700 | 1,600 | -150 | -50 |
| Other Mfg. | 1,850 | 1,850 | 1,900 | 0 | -50 |
| Trans. Comm. & Utilities | 9,500 | 9,600 | 10,100 | -100 | -600 |
| Trucking & Whseing. | 1,500 | 1,500 | 1,650 | 0 | -150 |
| Water Transportation | 300 | 300 | 350 | 0 | -50 |
| Air Transportation | 3,100 | 3,100 | 3,150 | 0 | -50 |
| Other Trans. Comm. & Utilities | 4,600 | 4,700 | 4,950 | -100 | -350 |
| Trade | 25,200 | 25,050 | 26,550 | 150 | -1,350 |
| Wholesale | 5,550 | 5,600 | 6,150 | -50 | -600 |
| Retail | 19,650 | 19,450 | 20,400 | 200 | -750 |
| Gen. Merchandise | 1,850 | 1,800 | 1,900 | 50 | -50 |
| Food Stores | 3,100 | 3,050 | 3,050 | 50 | 50 |
| Eating & Drinking Pl. | 7,850 | 7,750 | 8,100 | 100 | -250 |
| Other Retail Trade | 6,850 | 6,850 | 7,350 | 0 | -500 |
| Finance-Ins. & R.E. | 7,400 | 7,700 | 8,250 | -300 | -850 |
| Services & Misc. | 24,050 | 24,100 | 25,500 | -50 | -1,450 |
| Government | 24,950 | 25,350 | 25,600 | -400 | -650 |
| Federal | 10,800 | 10,750 | 10,250 | 50 | 550 |
| State | 6,100 | 6,300 | 6,800 | -200 | -700 |
| Local | 8,050 | 8,300 | 8,550 | -250 | -500 |

**Table 3**
**Nonagricultural Wage and Salary Employment**
**By Place of Work**
**Anchorage-MatSu**

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 112,700 | 112,900 | 118,900 | -200 | -6,200 |
| Mining | 3,350 | 3,300 | 3,500 | 50 | -150 |
| Construction | 8,450 | 8,100 | 9,250 | 350 | -800 |
| Manufacturing | 3,550 | 3,650 | 3,650 | -100 | -100 |
| Trans. Comm. & Utilities | 10,250 | 10,300 | 10,750 | -50 | -500 |
| Trade | 26,900 | 26,650 | 28,200 | 250 | -1,300 |
| Finance-Ins. & R.E. | 7,950 | 8,250 | 8,800 | -300 | -850 |
| Services & Misc. | 25,300 | 25,250 | 26,850 | 50 | -1,550 |
| Government | 26,950 | 27,400 | 27,900 | -450 | -950 |

## Fisheries

August employment numbers in the food and kindred products sector showed a drop of 1,900 jobs, a much steeper decline than is usually experienced in this industry from July to August. (Table 1) The seafood processing industry, which accounts for 95% of food and kindred products employment, experienced a sharp downturn due to the disastrous pink salmon runs in southern Southeast Alaska.

Unlike fisheries in the northern parts of the state, which tend to peak in July, the peak employment time for fish processing in Southeast Alaska is August. Rising seafood processing employment in Southeast Alaska in August usually offsets the drop in employment experienced elsewhere in the state. This year Southeast seafood processing employment did not increase as it normally does (Table 6). Compared to last August, Southeast Alaska fish processing employment is down over 550 jobs. With no additional employment materializing in Southeast the downturn in the Southwest and Gulf Coast regions of the state brought down the statewide seafood processing employment totals.

The pink salmon runs in and around Ketchikan are so far below forecasted levels that the Alaska Department of Fish and Game was forced to close the fishery in mid-season. This is the first time since 1976 that this has occurred. Two factors have been blamed for poor returns in the Ketchikan area; a cold winter in 1985 which killed many of the salmon fry which would have returned this summer, and an unusually dry summer which may have forced the fish into deeper waters. The affects on Ketchikan processors has been evident. Two processors recently reported that they packed 20-30% of the volume that they do in a normal season. In addition Ketchikan Gateway Borough has applied for disaster status based on the impacts of the poor fishery.

Elsewhere in the state, news in the fisheries industry is much more encouraging. Prince William Sound and

Table 4
Nonagricultural Wage and Salary Employment
By Place of Work
Fairbanks

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 26,900 | 27,200 | 28,950 | -300 | -2,050 |
| Mining | 150 | 150 | 100 | 0 | 50 |
| Construction | 2,000 | 1,950 | 2,300 | 50 | -300 |
| Manufacturing | 600 | 650 | 650 | -50 | -50 |
| Trans. Comm. & Utilities | 2,800 | 2,800 | 2,950 | 0 | -150 |
| Trucking & Whseing. | 350 | 350 | 350 | 0 | 0 |
| Air Transportation | 1,000 | 1,000 | 1,050 | 0 | -50 |
| Other Trans. Comm. & Utilities | 1,450 | 1,450 | 1,550 | 0 | -100 |
| Trade | 5,750 | 5,800 | 6,300 | -50 | -550 |
| Wholesale | 900 | 900 | 1,000 | 0 | -100 |
| Retail | 4,850 | 4,900 | 5,300 | -50 | -450 |
| Gen. Mer. & Apparel | 550 | 550 | 550 | 0 | 0 |
| Food Stores | 700 | 700 | 750 | 0 | -50 |
| Other Retail Trade | 3,600 | 3,650 | 4,000 | -50 | -400 |
| Finance-Ins. & R.E. | 1,000 | 1,000 | 1,100 | 0 | -100 |
| Services & Misc. | 5,950 | 6,050 | 6,400 | -100 | -450 |
| Government | 8,650 | 8,800 | 9,150 | -150 | -500 |
| Federal | 3,050 | 3,100 | 3,050 | -50 | 0 |
| State | 3,250 | 3,300 | 3,550 | -50 | -300 |
| Local | 2,350 | 2,400 | 2,550 | -50 | -200 |

Table 5
Nonagricultural Wage and Salary Employment
By Place of Work
Interior

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 31,300 | 31,300 | 33,550 | 0 | -2,250 |
| Mining | 300 | 300 | 300 | 0 | 0 |
| Construction | 2,300 | 2,200 | 2,550 | 100 | -250 |
| Manufacturing | 650 | 650 | 700 | 0 | -50 |
| Trans. Comm. & Utilities | 3,200 | 3,200 | 3,300 | 0 | -100 |
| Trade | 6,150 | 6,150 | 6,750 | 0 | -600 |
| Finance-Ins. & R.E. | 1,100 | 1,100 | 1,200 | 0 | -100 |
| Services & Misc. | 6,700 | 6,700 | 7,100 | 0 | -400 |
| Government | 10,900 | 11,000 | 11,650 | -100 | -750 |

Cook Inlet are both experiencing banner fishing years. Sockeye salmon was the species responsible in Upper Cook Inlet while the less valued but more plentiful pink salmon was double the expected catch in Prince William Sound.

Further good news for the fisheries industry was recently announced when the king crab harvest for the year ending July 1986 showed an increase of 60% over the 1985 harvest. This was the first over the year increase since 1980. The harvest was 27.2 million pounds, nowhere near the 100+ million pounds that was routinely harvested in the late 1970s, but an encouraging sign nonetheless.

King crab is an important product in terms of employment because it offers processors an opportunity to keep active during the fall and winter seasons, a traditionally slow time for seafood processors. However, the trend toward more offshore processing is affecting the king crab fishery just as it has other fin fish processing. According to Arni Thomson, executive director of the Alaska Crab Coalition, much of the recent investment in the crab fishery has been to convert "mud" boats—once used to carry drilling mud to offshore drilling rigs in the Gulf of Mexico—to catcher-processors.

These catcher-processors, which are generally based in Washington, are able to catch, cook, and freeze the crab without ever stopping at an Alaskan port to unload their cargo. Crab caught by catcher-processors who return to out-of-state ports without stopping in Alaska do not generate onshore processing employment in Alaska. In addition they don't pay Alaska taxes that help support the regulation of the crab fishery nor are state officials able to inspect the catch to insure that only legal crab are being taken. If catcher-processors are capturing a significant share of the total catch, employment numbers may not reflect the increase in catch because generally offshore processing employment is not counted by the Alaska Department of Labor.

### Other Industries

As indicated by unemployment claims data and an increase in employment over the month, the **construction industry** was one of the better performers in August. Geographically, the largest increases in construction employment over the month were in the Northern region (13.8%) and the Gulf Coast (5.5%) while construction in both Fairbanks and Anchorage increased at a 4.2% clip.

The Northern region is leading the pack largely due to the size and scope of the Red Dog mine access road. The project's impact on the Northwest Arctic Borough is also evident in the

drop in the unemployment rate from 19.5% in July to 16.4% in August. Additionally, there has also been activity on the North Slope.

Elsewhere in the state, the Gulf Coast's major construction project remains the Seward prison. Fairbanks construction is benefitting from a variety of projects among them the South Fairbanks expressway, military construction, and the new Bureau of Land Management building. Anchorage is putting the finishing touches on the Glenn Highway upgrade while work continues on Lake Otis Parkway, the Performing Arts Center the Court Building and the Eklutna water project to name a few. Activity in all regions will begin to fall off next month as weather conditions become more difficult to work in the northern parts of the state.

Continued oil price stability has meant good news for the **oil and gas industry**. An additional drilling rig was put on by ARCO late in August. It is not reflected in the August estimates but should show up in September. Preparation for production at the Endicott field has also been a boost for oil and gas employment. The long term outlook for oil prices indicates that the underlying supply and demand factors point to a lower price for oil. Tension remains high in the Persian Gulf however and as long as there is a perceived threat to oil supplies the price of oil will tend to be higher than warranted by underlying economic factors. For further information on the oil industry, refer to other articles in this issue of *Trends*.

The **lumber and paper products** sector experienced no change in employment from July to August but continues to be one of the better performers in terms of year-to-year employment growth. The monthly change from July to August was concentrated in the timber industry hours and earnings data (Table 8). Average weekly hours and hourly earnings both increased in the timber industry as several firms returned to full strength after a temporary shutdown associated with the Fourth of July holiday.

While most Alaskan industries are experiencing employment declines over last year, lumber and paper products is up more than 6% from August 1986. Funding for the management of the Tongass National Forest at its present level is currently under scrutiny by the Congress and is coming under fire from environmental groups. At risk is an automatic appropriation of $40 million dollars to manage the Tongass. Should that appropriation be cut, the future viability of the forest products industry in Southeast Alaska would be in jeopardy.

**Hard rock mining**, another industry bucking the statewide trend toward falling employment, received good news when it was announced that Greens Creek mine on Admiralty Island near Juneau should be in full production by September of 1988. Currently the road linking the mine site to tidewater is being finished by a construction crew of 65 and an additional 65 employees are preparing for production. Estimates for employ-

**Table 6**
**Nonagricultural Wage and Salary Employment**
**By Place of Work**
**Southeast Alaska**

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 30,650 | 30,800 | 32,400 | -150 | -1,750 |
| Construction | 1,200 | 1,150 | 1,450 | 50 | -250 |
| Manufacturing | 5,300 | 5,250 | 5,700 | 50 | -400 |
| Food & Kindred Prod. | 2,100 | 2,000 | 2,650 | 100 | -550 |
| Lumber & Paper Prod. | 3,000 | 3,050 | 2,850 | -50 | 150 |
| All Other Mfg. | 200 | 200 | 200 | 0 | 0 |
| Trans. Comm. & Utilities | 2,550 | 2,500 | 2,550 | 50 | 0 |
| Trade | 4,850 | 4,900 | 4,900 | -50 | -50 |
| Wholesale | 400 | 400 | 350 | 0 | 50 |
| Retail | 4,450 | 4,500 | 4,550 | -50 | -100 |
| Finance-Ins. & R.E. | 1,200 | 1,200 | 1,250 | 0 | -50 |
| Mining, Services & Misc. | 4,550 | 4,600 | 4,750 | -50 | -200 |
| Government | 11,000 | 11,200 | 11,800 | -200 | -800 |
| Federal | 2,200 | 2,200 | 2,200 | 0 | 0 |
| State | 4,900 | 5,000 | 5,250 | -100 | -350 |
| Local | 3,900 | 4,000 | 4,350 | -100 | -450 |

**Table 7**
**Nonagricultural Wage and Salary Employment**
**By Place of Work**
**Gulf Coast**

| | p/ 8/87 | r/ 7/87 | 8/86 | Changes From: 7/87 | 8/86 |
|---|---|---|---|---|---|
| Nonag. Wage & Salary | 22,800 | 23,700 | 24,450 | -900 | -1,650 |
| Mining | 850 | 850 | 900 | 0 | -50 |
| Construction | 1,200 | 1,150 | 1,550 | 50 | -350 |
| Manufacturing | 6,650 | 7,500 | 7,000 | -850 | -350 |
| Food & Kindred Prod. | 6,050 | 6,900 | 6,400 | -850 | -350 |
| All Other Mfg. | 600 | 600 | 600 | 0 | 0 |
| Trans. Comm. & Utilities | 1,300 | 1,350 | 1,350 | -50 | -50 |
| Trade | 3,750 | 3,850 | 3,950 | -100 | -200 |
| Wholesale | 600 | 650 | 650 | -50 | -50 |
| Retail | 3,150 | 3,200 | 3,300 | -50 | -150 |
| Finance-Ins. & R.E. | 650 | 650 | 700 | 0 | -50 |
| Services & Misc. | 3,500 | 3,600 | 3,650 | -100 | -150 |
| Government | 4,900 | 4,750 | 5,350 | 150 | -450 |
| Federal | 600 | 550 | 650 | 50 | -50 |
| State | 1,450 | 1,450 | 1,600 | 0 | -150 |
| Local | 2,850 | 2,750 | 3,100 | 100 | -250 |

Table 8
Alaska Hours and Earnings for Selected Industries [1] / [2]

| | Average Weekly Earnings | | | Average Weekly Hours | | | Average Hourly Earnings | | |
|---|---|---|---|---|---|---|---|---|---|
| | P/ 8/87 | R/ 7/87 | 8/86 | P/ 8/87 | R/ 7/87 | 8/86 | P/ 8/87 | R/ 7/87 | 8/86 |
| Mining | 1122.31 | 1175.30 | 1165.32 | 50.6 | 51.1 | 51.7 | 22.18 | 23.00 | 22.54 |
| Construction | 1117.95 | 1027.94 | 1152.77 | 44.7 | 42.6 | 45.6 | 25.01 | 24.13 | 25.28 |
| Manufacturing | 502.61 | 44[illegible].47 | 473.76 | 45.9 | 45.8 | 47.0 | 10.95 | 9.77 | 10.08 |
| Food & Kindred Prod. | 418.77 | 392.50 | 394.35 | 47.0 | 48.1 | 47.8 | 8.91 | 8.16 | 8.25 |
| Lumber & Paper Prod | 717.06 | 572.93 | 725.18 | 44.4 | 38.4 | 50.5 | 16.15 | 14.92 | 14.36 |
| Trans., Comm. & Util. | 550.96 | 566.28 | 566.18 | 35.8 | 36.3 | 37.2 | 15.39 | 15.60 | 15.22 |
| Trade | 366.28 | 374.18 | 376.19 | 34.2 | 35.2 | 33.8 | 10.71 | 10.63 | 11.13 |
| Wholesale | 524.72 | 521.53 | 513.25 | 39.1 | 39.6 | 37.3 | 13.42 | 13.17 | 13.76 |
| Retail | 313.29 | 323.52 | 329.62 | 32.6 | 33.7 | 32.7 | 9.61 | 9.60 | 10.08 |
| Finance-Ins. & R.E | 386.45 | 377.69 | 392.54 | 33.2 | 32.9 | 35.3 | 11.64 | 11.48 | 11.12 |

[1] Prepared in cooperation with the Bureau of Labor Statistics US Department of Labor

[2] Excludes eating and drinking establishments

AVERAGE HOURS AND EARNINGS SERIES: Averages are based on data for full and part time production workers (manufacturing) and non-supervisory workers (nonmanufacturing) and are for gross earnings and hours paid, including overtime pay and hours.

ment during production have been increased from 165 to 250. All of this is good news for the Juneau economy which is in the throes of a general downturn.

**The trade industry** experienced a slight increase in employment, but within the subsectors of trade indications were mixed. Eating and drinking establishments employment was up compared to July as was food store employment. On the other hand employment losses were registered in most other categories including building materials and house and garden supply stores, automotive dealers and miscellaneous retail trade. The increase in eating and drinking establishment employment was concentrated in fast food restaurants while other restaurant types held employment steady over the month. An increase in fast food restaurant employment during the summer is not an unusual phenomenon. Outdoor recreational activity in Alaska is at its peak in the summer and fast food restaurants benefit because they cater to those who want to get a quick inexpensive meal on the go.

**The transportation and services** sector employment both posted employment losses over the month. Losses in the transportation industry were limited to local passenger transportation modes such as school buses and smaller tour bus operations. In addition there was a slight drop off in employment in the telephone communications sector from July. Services employment dropped over the month in just about every category. Membership organizations, which includes groups such as labor unions and volunteer service organizations like Rotary and the Girl Scouts, is the sector taking the largest losses in services. The only services sector which seems to be weathering the current downturn is medical services.

**Finance-insurance and real estate** employment losses were largely in the banking sector and the insurance sector. Banking employment is currently 14% below last year's levels and with a merger of two of Alaska's larger banks in the works further consolidation can be expected in this industry.

**Government** employment was down 400 jobs from July as the new state fiscal year began to take its toll. Some of the employment losses in state government were seasonal as the University of Alaska system experienced a drop in employment due to school ending. Local government also had some seasonal losses in local school districts. Federal employment on the other hand grew slightly in August.

## Overview

Alaska's economy started its annual downturn in employment in August, a month earlier than normal, largely due to less employment than usual in the seafood processing sector. The peak July employment was 226,100, the lowest peak employment total for the state since 1982. Should the economy follow its normal seasonal pattern and no other major events change the course of the economy during the next four months, annual average employment will be in the neighborhood of 213,000, a drop of 4% from 1986. A drop of this magnitude was experienced from 1985 to 1986, only the losses were concentrated in the construction and mining sectors, while the 1986 to 1987 losses are more in the secondary industries. If any good news can be gleaned out of the current employment numbers it is that those sectors which led the rest of the economy into its current state, in particular mining and construction, are now experiencing better employment outlooks. If these two industries are again indicators of the direction of the Alaska economy a turnaround in the employment situation could be in store for Alaska in 1988.

Table 9
Labor Force By Region and Census Area

| | Labor Force | | | Unemployment | | | Rate | | | Employment | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P/ 8/87 | R/ 7/87 | 8/86 | P/ 8/87 | R/ 7/87 | 8/86 | P/ 8/87 | R/ 7/87 | 8/86 | P/ 8/87 | R/ 7/87 | 8/86 |
| Alaska Statewide | 261,106 | 265,896 | 273,659 | 23,858 | 25,831 | 26,869 | 9.1 | 9.7 | 9.8 | 237,248 | 240,065 | 246,790 |
| Anch.-MatSu Region | 135,084 | 136,618 | 142,038 | 11,595 | 12,356 | 13,399 | 8.6 | 9.0 | 9.4 | 123,489 | 124,262 | 128,639 |
| Anchorage Borough | 119,327 | 120,823 | 125,167 | 8,998 | 9,467 | 10,577 | 7.5 | 7.8 | 8.5 | 110,329 | 111,356 | 114,590 |
| MatSu Borough | 15,757 | 15,795 | 16,871 | 2,597 | 2,889 | 2,822 | 16.5 | 18.3 | 16.7 | 13,160 | 12,906 | 14,049 |
| Gulf Coast Region | 30,638 | 32,314 | 32,520 | 2,956 | 3,402 | 3,402 | 9.6 | 10.5 | 10.5 | 27,682 | 28,912 | 29,118 |
| Kenai Peninsula Br | 18,885 | 19,998 | 20,188 | 2,368 | 2,747 | 2,814 | 12.5 | 13.7 | 13.9 | 16,517 | 17,251 | 17,374 |
| Kodiak Island Borough | 7,181 | 7,546 | 7,560 | 283 | 341 | 304 | 3.9 | 4.5 | 4.0 | 6,898 | 7,205 | 7,256 |
| Valdez-Cordova | 4,572 | 4,770 | 4,772 | 305 | 314 | 284 | 6.7 | 6.6 | 6.0 | 4,267 | 4,456 | 4,488 |
| Interior Region | 39,038 | 39,589 | 41,147 | 4,815 | 5,101 | 5,218 | 12.3 | 12.9 | 12.7 | 34,223 | 34,488 | 35,929 |
| Fairbanks North Star Br | 33,738 | 34,189 | 35,733 | 4,022 | 4,244 | 4,537 | 11.9 | 12.4 | 12.7 | 29,716 | 29,945 | 31,196 |
| Southeast Fairbanks | 2,294 | 2,302 | 2,374 | 299 | 291 | 279 | 13.0 | 12.6 | 11.8 | 1,995 | 2,011 | 2,095 |
| Yukon-Koyukuk | 3,006 | 3,098 | 3,040 | 494 | 566 | 402 | 16.4 | 18.3 | 13.2 | 2,512 | 2,532 | 2,638 |
| Northern Region | 8,278 | 8,127 | 8,484 | 962 | 1,075 | 1,089 | 11.6 | 13.2 | 12.8 | 7,316 | 7,052 | 7,395 |
| Nome | 3,207 | 3,136 | 3,294 | 428 | 457 | 485 | 13.3 | 14.6 | 14.7 | 2,779 | 2,679 | 2,809 |
| North Slope Borough | 2,865 | 2,781 | 2,890 | 173 | 186 | 169 | 6.0 | 6.7 | 5.8 | 2,692 | 2,595 | 2,721 |
| Northwest Arctic Br | 2,206 | 2,210 | 2,300 | 361 | 432 | 435 | 16.4 | 19.5 | 18.9 | 1,845 | 1,778 | 1,865 |
| Southeast Region | 35,216 | 35,808 | 36,818 | 2,572 | 2,885 | 2,753 | 7.3 | 8.1 | 7.5 | 32,644 | 32,923 | 34,065 |
| Haines Borough | 965 | 982 | 992 | 83 | 93 | 72 | 8.6 | 9.5 | 7.3 | 882 | 889 | 920 |
| Juneau Borough | 15,537 | 15,788 | 16,358 | 1,071 | 1,198 | 1,261 | 6.9 | 7.6 | 7.7 | 14,466 | 14,590 | 15,097 |
| Ketchikan Gateway Br | 7,067 | 7,149 | 7,322 | 491 | 517 | 460 | 6.9 | 7.2 | 6.3 | 6,576 | 6,632 | 6,862 |
| Pr. of Wales-Outer Ktch | 2,490 | 2,543 | 2,579 | 262 | 296 | 254 | 10.5 | 11.6 | 9.8 | 2,228 | 2,247 | 2,325 |
| Sitka Borough | 4,155 | 4,244 | 4,375 | 266 | 322 | 317 | 6.4 | 7.6 | 7.2 | 3,889 | 3,922 | 4,058 |
| Skagway-Yakutat-Ang | 1,572 | 1,596 | 1,644 | 175 | 187 | 187 | 11.1 | 11.7 | 11.4 | 1,397 | 1,409 | 1,457 |
| Wrangell-Petersburg | 3,430 | 3,506 | 3,548 | 224 | 272 | 202 | 6.5 | 7.8 | 5.7 | 3,206 | 3,234 | 3,346 |
| Southwest Region | 12,852 | 13,440 | 12,652 | 958 | 1,012 | 1,008 | 7.5 | 7.5 | 8.0 | 11,894 | 12,428 | 11,644 |
| Aleutian Islands | 3,272 | 3,415 | 3,222 | 95 | 96 | 112 | 2.9 | 2.8 | 3.5 | 3,177 | 3,319 | 3,110 |
| Bethel | 5,251 | 5,504 | 5,139 | 531 | 572 | 518 | 10.1 | 10.4 | 10.1 | 4,720 | 4,932 | 4,621 |
| Bristol Bay Borough | 474 | 491 | 461 | 21 | 17 | 17 | 4.4 | 3.5 | 3.7 | 453 | 474 | 444 |
| Dillingham | 2,203 | 2,307 | 2,194 | 100 | 109 | 135 | 4.5 | 4.7 | 6.2 | 2,103 | 2,198 | 2,059 |
| Wade Hampton | 1,652 | 1,723 | 1,636 | 211 | 218 | 226 | 12.8 | 12.7 | 13.8 | 1,441 | 1,505 | 1,410 |

P/ Preliminary R/ Revised 1986 Benchmark

Federal guidelines require the use of unrounded labor force data, adjusted to be consistent with the Current Population Survey (CPS) in formulas used to allocate federal funds. Comparisons between different time periods are not as meaningful as other time series published by the Alaska Department of Labor; because Alaska's CPS sample size is inadequate to accurately indicate monthly changes in level. The sampling errors are random in nature; meaning that the unemployment rates, in any given month, are as likely to be high as frequently as they are low. The official definitions of unemployment, currently in place, exclude anyone who has made no attempt to find work in the four week period up to and including the week that includes the twelfth of each month. Most economists feel that Alaska's rural localities have proportionately more of these discouraged workers.

**ALASKA ECONOMIC TRENDS**
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